



# CARBON TRADING - A FLAWED APPROACH: EXAMINING LIMITATIONS AND INEQUALITIES IN CLIMATE PROTOCOLS

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## ABSTRACT

The inclusion of carbon trading in the Kyoto Protocol to combat climate change has allowed developed nations to exploit loopholes and avoid significant emission reductions. This undermines global efforts to combat climate change effectively. The flaw lies in the implementation of carbon trading within the protocols, as it allegedly perpetuates an unequal burden of responsibility on developing nations in the fight against climate change. This research paper critically examines flaws in the implementation of carbon trading within climate protocols, particularly in the context of the Kyoto Protocol. The paper reviews the works "Carbon Trading: How it Works and Why it Fails" by Gilbertson and Reyes, and "Carbon Trading: A Review of the Kyoto Mechanisms" by Hepburn to shed light on the limitations and shortcomings of carbon trading and its integration into the Kyoto Protocol. It emphasizes the unequal burden of responsibility between developed and developing nations. The shortcomings of Carbon Trading, Clean Development Mechanism (CDM), and Joint Implementation (JI) in achieving emission reduction goals and promoting sustainable development are identified in the arguments. It also reviews the McKinsey Insights article "How the voluntary carbon market can help address climate change" to bring a counterview and provide balance to the paper. It was found that a fair debate on the effectiveness of the Carbon trading mechanism is essential for developing a more equitable and effective approach to combat climate change.

**KEYWORDS:** Carbon trading, Kyoto Protocol, Climate Change, Greenhouse Gas Emissions.

## INTRODUCTION

The threat posed by climate change requires immediate and effective action from all nations. Various climate treaties like the Kyoto Protocol and the Paris Agreement have been adopted to mitigate the risk of climate change. Carbon trading has been implemented within climate protocols as a market-based approach to reducing greenhouse gas emissions. The inclusion of carbon trading in the Kyoto Protocol to combat climate change has allowed developed nations to exploit loopholes. They have shown an unwillingness to reduce greenhouse gas emissions, instead opting for carbon trading mechanisms to pass the burden on developing nations. This undermines global efforts to reduce greenhouse gas emissions. In the words of Mark Ruffalo, a renowned actor, and climate activist, "*Climate change is the greatest threat to our existence in our short history on this planet. Nobody's going to buy their way out of its effects.*". The flaw lies not in carbon trading itself, but rather in its implementation within the protocols. Carbon trading perpetuates an unequal burden of responsibility on developing nations in the fight against climate change. The flaws in carbon trading can be understood by analyzing the Kyoto Protocol, its market-based mechanisms including Carbon trading to combat climate change, and devising innovative solutions to tackle this issue.

## Methodology

**Research Design:** This research paper utilizes a qualitative research design to critically examine the flaws in carbon trading within climate protocols, particularly in the context of the Kyoto Protocol. Qualitative research allows for an in-depth analysis of complex issues, providing a comprehensive understanding of the topic.

**Research Question:** What are the flaws in the implementation of carbon trading in climate protocols like the Kyoto Protocol? How do these flaws in carbon trading contribute to the limited reduction of emissions?

**Literature Review:** The paper reviews the works "*Carbon Trading: How it Works and Why it Fails*" by Gilbertson and Reyes (2009), and "*Carbon Trading: A Review of the Kyoto Mechanisms*" by Hepburn to shed light on the limitations and shortcomings of carbon trading and its integration into the Kyoto Protocol. It emphasizes the unequal burden of responsibility between developed and developing nations. The shortcomings of Carbon Trading, Clean Development Mechanism (CDM), and Joint Implementation (JI) in achieving emission reduction goals and promoting sustainable development are identified in the arguments. It also reviews the McKinsey Insights article "*How the voluntary carbon market can help address climate change*" to bring a counterview and provide balance to the paper.

## Limitations.

**Limited Scope:** The research paper focuses primarily on the flaws and limitations of carbon trading within the context of the Kyoto Protocol. While this provides valuable insights into the specific shortcomings of this particular climate protocol it may not fully capture the broader range of limitations associated with carbon trading as a concept.

**Limited Sources:** The methodology predominantly draws on the works of Gilbertson, Reyes, and Hepburn to highlight the flaws and limitations of carbon trading. While these authors are experts in the field, relying heavily on a select few sources may introduce a potential bias and overlook alternative perspectives or contradictory findings.

**Absence of Quantitative Analysis:** The methodology does not include quantitative analysis or data-driven information to assess the extent of the identified limitations or quantify their impact.

## History of Climate Protocols

An international treaty to reduce greenhouse gases 'The Kyoto Protocol' was implemented by the United Nations Framework Convention on Climate Change (UNFCCC). It was adopted on 11 December 1997 and implemented on 16 February 2005. The key feature of the Kyoto Protocol is that each country will have to lower or limit their greenhouse gas emissions by an average of 5 percent below their total 1990 emission levels. Carbon trading within this protocol is a market-based approach designed to reduce greenhouse gas emissions. Though we cannot pinpoint the founder of carbon trading it can be traced back to the work of economists Ronald Coase, George Stigler, and later, J. H. Dales (UNFCCC, n.d.). They provided the framework of ideas that have influenced the development and understanding of market-based mechanisms. The implementation of carbon trading finds its roots in initiatives like the Acid Rain Program (1990) and Rio de Janeiro Earth Summit (1992). The Acid Rain Program demonstrated the feasibility and effectiveness of market-based mechanisms in reducing pollution. The Kyoto Protocol expanded on these ideas, incorporating carbon trading as a means to achieve emission reduction targets. The Kyoto Protocol introduced three market-based approaches to reducing emissions.

1. **Clean Development Mechanism (CDM):** The CDM allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO<sub>2</sub>. These CERs can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol. The mechanism stimulates sustainable development and emission reductions while giving industrialized countries some flexibility in how they meet their emission reduction limitation targets (UNFCCC, n.d.).
2. **Joint Implementation (JI):** Under Joint Implementation, countries with commitments under the Kyoto Protocol are eligible to transfer and/or acquire emission reduction units (ERUs) and use them to meet part of their emission reduction target (UNFCCC, n.d.).
3. **Emissions Trading (ET):** Countries with commitments under the Kyoto Protocol can acquire emission units from other countries with commitments under the Protocol and use them towards meeting a part of their targets. An international transaction log, a software-based accounting system, ensures the secure transfer of emission reduction units between countries (UNFCCC, n.d.).

### Analysis of Flaws & Proposed Solutions

Gilbertson & Reyes (2009) provides an in-depth analysis of the flaws in the implementation of carbon trading from its inception and its integration into the Kyoto Protocol. The authors argue that carbon trading allows developed nations to exploit loopholes and avoid effective emissions reduction methods. They shed light on the motivations behind the inclusion of carbon trading in the Kyoto Protocol, highlighting its potential benefits for developed nations at the expense of developing nations. Based on pollution theories by Coase, Dales, and Crocker, the paper emphasizes that carbon trading has faced skepticism regarding its effectiveness. Economists such as Crocker and Dales have recognized the complexities of managing carbon pollution under a singular scheme and the limitations of enforcing an international permit system. In *"Carbon Trading: A Review of the Kyoto Mechanisms"*, Hepburn examines problems with CDM within the Kyoto Protocol. He argues that CDM fails to address the long-term need to reduce CO<sub>2</sub> emissions from the energy sector and curb the expansion of high-carbon assets. CDM's design lacks adequate mechanisms to tackle these pressing issues, limiting its effectiveness in achieving long-term emission reduction goals. Furthermore, Hepburn highlights the limited contribution of CDM to sustainable development in poor countries, particularly in Africa. It fails to achieve its goal of fostering a connection between developed and developing countries. CDM's project selection process, which prioritizes the cheapest projects, undermines its potential as an effective subsidy mechanism and raises concerns about its overall efficiency.

Both papers shed light on the flaws in the implementation of carbon trading and its integration into the Kyoto Protocol. "Carbon Trading: How it Works and Why it Fails" examines the flaws in the implementation of carbon trading from its inception and the motivations behind its inclusion in the Kyoto Protocol, emphasizing the unequal burden of responsibility between developed and developing nations. *"Carbon Trading: A Review of the Kyoto Mechanisms"* focuses on problems with CDM and its shortcomings in addressing long-term emission reduction needs and promoting sustainable development. Together these papers provide a critical understanding of carbon trading's limitation in the Kyoto Protocol. From the inception of carbon trading, flaws in the approach were evident, despite the initial optimism surrounding Ronald Coase's pollution trading theory, also known as the Coase Theorem. Coase argued that granting clear ownership rights to polluters would enable them to buy, sell, and trade the right to pollute, leading to self-regulation and pollution reduction. According to Coase, the right to pollute was akin to a tradable resource, and by allowing its free trade, individuals would be motivated to find the most cost-effective means of reducing pollution. This perspective advocated for minimal government interference, allowing individuals to devise solutions that benefited all parties involved.

According to the article *"What are carbon markets and why are they important?"*, carbon trading is presented as a market-based approach that offers flexibility and innovation in reducing greenhouse gas emissions. However, contrary to these claims, this research indicates that carbon trading has not been effective in achieving substantial emission reductions. The Clean Development Mechanism (CDM) within the Kyoto Protocol has failed to address CO<sub>2</sub> emissions from the energy sector and limit the expansion of high-carbon assets. Furthermore, inadequate governance in carbon trading has resulted in false claims of emission reductions, allowing for manipulation and inaccurate reporting. The absence of a global standard for measuring emissions, lack of transparency, and a credibility deficit. These findings highlight the limitations of carbon trading in significantly reducing emissions.

### Market-Based Mechanism vs Government Imposed Limits

Building upon Coase's ideas, successors like J.H. Dales and Thomas Crocker further developed pollution trading theory. While they also acknowledged the importance of granting formal rights to polluters, they proposed the need for government-imposed limits on overall pollution levels instead of relying solely on a perfect market. Pollution trading became a mechanism for businesses to identify the most cost-effective strategies to meet predetermined emissions targets. However, pioneers of pollution trading theories grew skeptical when confronted with the realities of carbon trading. Thomas Crocker, one of these pioneers, voiced doubts about the effectiveness of cap-and-trade mechanisms in regulating carbon emissions through his words, *"I'm skeptical that cap-and-trade is the most effective way to go about regulating carbon."* (Gilbertson & Reyes, 2009a). He expressed surprise that a complex issue like carbon pollution could be adequately managed under a singular scheme. Similarly, J.H. Dales questioned the enforceability of an international permit system, emphasizing the situations where emissions trading theory might not be applicable. Both economists recognized the challenges associated with enforcing an international permit system, highlighting the complexities and practical limitations they observed in the implementation of carbon trading.

### Reduction Goal Ignored

The implementation of carbon trading within climate protocols as a means to reduce greenhouse gas emissions has proven to be ineffective. According to the author of the research paper titled *"Carbon Trading: A Review of the Kyoto Mechanisms"*, the Clean Development Mechanism (CDM), which was introduced in the Kyoto Protocol, has been unsuccessful in reducing CO<sub>2</sub> emissions from the energy sector and in curbing the expansion of high-carbon assets such as coal-fired power plants. The design of the CDM lacks sufficient mechanisms to tackle

these critical issues, thereby limiting its effectiveness in achieving long-term emission reduction goals. Moreover, United Nations (UN) officials have verified the findings of the Stockholm Environment Institute, which reveal that approximately 600 million tonnes of carbon were erroneously emitted due to the United Nations Framework Convention on Climate Change's (UNFCCC) Joint Implementation (JI) scheme. This further highlights the shortcomings and drawbacks of carbon trading within climate protocols in effectively addressing greenhouse gas emissions.

### Lack of Global Standards & Regulations for Carbon Emissions

There is a significant risk of false claims about reducing carbon emissions when implementing carbon trading in climate protocols. Insufficient oversight and regulation can allow for manipulations and inaccuracies in reporting emissions reductions. For instance, the introduction of offsetting, a method for countries to balance their carbon emissions by funding projects that reduce emissions elsewhere, was implemented by the US EPA. The intention was to facilitate reaching carbon targets and counteract pollution from industrial installations through actions like purchasing and scrapping old cars or making substitutions in material processes. However, due to inadequate governance, numerous entrepreneurs have exploited the system by selling credits for destroying cars that had already been abandoned. This means that no actual reduction in pollution occurred because the cars were already inactive and not contributing to emissions. Thus, it is important to establish a global agency that formulates standardized guidelines for greenhouse gas emissions and ensures the effectiveness of emission reduction efforts. As Jennifer L. (2023) points out in her article *"Inside Carbon Markets: Problems, Causes, and Potential Solutions,"* the real issue with carbon credit schemes is not their market-based nature but the lack of robust governance that guarantees their intended outcomes.<sup>21</sup>

### Lack of Global Monitoring and Assessment Agency for Carbon Emissions

Currently, there is no one independent authority managing and monitoring the emission rates and targets of climate protocols but there is an outlined methodology provided by Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories. While these guidelines can provide countries' references for their inventory, there was flexibility for countries to adapt and apply the methodologies to suit their national circumstances. This flexibility allows countries to use their own national standards and protocols as long as they were consistent with the overall principles and requirements of the Kyoto Protocol. The Paris Agreement also relies on the use of national greenhouse gas inventories, but it does not prescribe a specific global standard for measuring emissions.

### Lack of Transparency

The system of self-reporting may lead to biased objectivity in estimating and reporting emissions. Without independent verification and oversight, there may be a temptation for countries to manipulate or present emissions data in a favorable light, potentially undermining the integrity and accuracy of reported emissions.

### Variations In Methodologies & Data Quality

Different countries have adopted varying methodologies and approaches to measure and report emissions, leading to inconsistencies and challenges in comparing emissions across nations. Variations in data quality, measurement techniques, and reporting practices affect the accuracy of progress toward emission targets.

### Lack Of Trust & Credibility

The absence of an independent verification system can raise concerns about accuracy and reliability. This lack of trust can hamper international cooperation and interfere with emission reduction targets. Inadequate governance weakens carbon trading systems, leading to false claims of emission reductions. Establishing global standards and oversight is crucial for carbon markets to fulfill their purpose. Robust mechanisms for verifying emissions, promoting transparency, and ensuring accountability are vital. Independent audits and international reviews can guarantee accurate national inventories. Strengthening international cooperation and data sharing improves consistency in emissions reporting, reducing discrepancies and manipulation.

### CONCLUSION

The inclusion of carbon trading in the Kyoto Protocol allowed developed nations to exploit loopholes and avoid significant emission reductions, resulting in an unequal burden of responsibility. This undermines global efforts to combat climate change effectively. Reconsidering the role of carbon trading in climate protocols is crucial. Removing carbon trading would require developed nations to directly lower their emissions, promoting a more equitable distribution of responsibility. It is important to address the flaws in carbon trading and explore alternative strategies that prioritize emission reduction within individual nations, promote technology transfer, and support sustainable development. Shifting away from carbon trading can foster a more equitable and collective effort to combat climate change and create a sustainable future. Carbon trading, as currently implemented, has flaws that perpetuate an uneven burden of responsibility in the fight against climate change. The inclusion of market-based mechanisms in the Kyoto Protocol aimed to provide flexibility but has faced criticism for its limitations and potential for exploitation. Addressing these flaws is crucial for achiev-

ing more equitable and effective solutions in combating climate change.

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